2. The relationship between the two methods looks linear. A linear regression model should provide an adequate fit.

3. $\hat{y} = 10.3 + .267x$

The measurement from the Homogenate method increases, on average, by 0.267 when the measurement from the Pellet method increases by 1 unit.

4. $e_1 = y_1 - \hat{y}_1 = y_1 - (\hat{\beta}_0 + \hat{\beta}_1 x_1) = 18.88 - (10.3 + .267 \times 70) = -10.11$

5. $s_\varepsilon = 15.62$

This measures the typical vertical distance from any data point to the regression line. Or: About 68% of the data points are within 15.62 around the regression line, about 95% of them are within 2×15.62 around the regression line, and almost all (99.7%) of them are within 3×15.62 around the regression line.

6. $\hat{\beta}_1 \pm t(n-2)_{\alpha/2} SE_{\hat{\beta}_1} = .267 \pm 2.074(.03251) = (.2, .334)$

Yes, there is a linear relationship between the two methods because the C.I. does not contain 0.

7. 90% C.I. for Ey_{n+1}: (30.72, 43.34)

We are 90% confident that the mean Homogenate measurement for many patients with a Pellet measurement of 100 will be between 30.72 and 43.34.

90% P.I. for y_{n+1}: (9.48, 64.58)

We are 90% confident that the Homogenate measurement for a patients with a Pellet measurement of 100 will be between 9.48 and 64.58.

8. SSR=16440, SSE=5366, SST=21806. 16440+5366=21806 $\Rightarrow$ SSR+SSE=SST.

9. $r = .868$

The measurements from the two methods have a quite strong positive relationship.

10. $r^2 = 75.4\%$

About 75.4% of the total variation in Homogenate measurements is explained by (a linear regression model on) the Pellet measurements.